DOCUMENT RESUME

ED 248 578 EA 017 041

AUTHOR Land, Arthur J.
TITLE The Quality Control Circle: Is It for Education?
PUB DATE 14 Nov 83
NOTE 17p.; Paper presented at the Annual Conference of the Southern Regional Council on Educational Administration (Knoxville, TN, November 13-15, 1983).
PUB TYPE Viewpoints (120) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Educational Administration; *Educational Quality; Elementary Secondary Education; Higher Education; *Organization; *Participative Decision Making; Problem Solving
IDENTIFIERS *Quality Circles

ABSTRACT

From its start in Japan after World War II, the Quality Control Circle (Q.C.) approach to management and organizational operation evolved into what it is today: people doing similar work meeting regularly to identify, objectively analyze, and develop solutions to problems. The Q.C. approach meets Maslow's theory of motivation by inviting individuals to self-actualization activities that challenge their creative and developmental potential. Those closest to the problem become personally committed to the effective implementation of the solution. The Q.C. approach can and has worked where that was the genuine desire of all involved. In higher education, the wide variation in administration across the country allows the potential for Q.C. management in some selected institutions. At the public school level, Q.C. management has had successful results in the Special Education Department of the Muskegan, Michigan, school system. Eventually the Q.C. approach will be the wave of the future in administration. Attachments to the paper include a newspaper clipping, a list of elements essential to a successful Q.C. program, and a 47-item bibliography. (MLF)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

X This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Arthur J. Land

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

EA

ED248578

THE QUALITY CONTROL CIRCLE: IS IT FOR EDUCATION?

BY
ARTHUR J. LAND, ED.D.

COLUMBUS COLLEGE, COLUMBUS, GEORGIA
November 14, 1983

SRCEA Annual Meeting
Knoxville, Tennessee

EA 017 041

The Quality Control Circle: Is It For Education?

Arthur J. Land, Ed.D.
Columbus College, Columbus, Georgia

Today, when the significant question surrounding education in the U.S. is how to solve problems of educational quality, it seems especially appropriate to look at a form of organizational operation and management that is by title and definition devoted to achieving the highest quality in its products--The Quality Control Circle.

The real question is: While quality control circles are being used with apparent success in much of private industry, can we apply the method with equally impressive effects on the quality and productivity of school operations?

In an effort to avoid an unequivocal "maybe" in response to the central question contained in the title of this paper, I would like to briefly review the history of the quality control circle (Q.C.) concept, define what it is, describe how it operates, and most importantly, explore why it works. Following this, I will examine the reasons for the successes and failures in past applications of the Q.C. concept in industry along with some conclusions in view of traditional administrative theory (theory X) as opposed to the well-developed Q.C. approach to administration. It seems to me that the Q.C. may well be the most comprehensively and completely developed model of participatory management theory in practice (theory Z administration). I will conclude with my views on the applicability of Q.C. in the school.

A Brief History

Prior to, and immediately following World War II, Japan found itself saddled with offering products internationally reputed to be of extremely inferior quality. As a nation which depends upon a strong export market for its very

survival, Japanese industry and government together made the improvement of its products in order to increase market attractiveness a top priority item. Through the auspices of General Douglas MacArthur, a government statistician by the name of William Edward Deming was invited to instruct the Japanese in applications of statistical analysis to measure product quality. Working through and with the Japanese Union of Scientists and Engineers, this training was provided to production foremen throughout Japan. After receiving the training, the foremen shared their knowledge with their ~~employees~~ subordinates in an effort to sensitize the employees to the quality of their work and to ask that they join in the effort to improve product quality. From this start, the Q.C. movement evolved into what it is today: people doing similar work who meet regularly to identify, objectively analyze, and develop solutions to problems of mutual concern in the work-place. It is not a "fad", a "managerial technique" or a "quick fix"--it is a way of life based upon drawing fully on the human resources in the work-place.

If you were to ask for evidence that it really works, I would point out that Japan is now the third largest producer in the world, dominating a number of world markets previously led by the U. S. (e.g., personal electronics goods, steel, textiles, and others), and continues to thrive while the U. S. has been experiencing productivity declines, increased perceived alienation of workers from their jobs, and increasing labor costs. The American industrial machine, which has always been thought by many to be invincible, is clearly ailing. It was estimated in Business Week (1) that the competitive loss to America in recent years is $125 billion in reduced production and some 2 million lost jobs. In fact, Dr. Deming himself predicted back in the 1950's that Japan would surpass other countries in product quality and

---

(1) "The Decline of U. S. Industry", Business Week, June 30, 1980, p. 59

progress within twenty years from then (2). His prediction is certainly being borne out in many important respects.

How Does a Q.C. Work?

With reference to the definition of the Q.C., above, (namely, people doing similar work who meet regularly to identify, objectively analyze, and develop solutions to problems of mutual concern in the work-place) the organizational structure and administration is designed to support the effectiveness of the workers who are closest to the problems in solving them. This implies administrators who can trust employees to act in good faith to work to achieve the company's and their own objectives for the mutual benefit of both.

First of all, joining a Q.C. is entirely voluntary on the employee's part. The Q.C. has a leader (often elected), and includes the supervisor (sometimes the leader, if acceptable and effective in that role within the Q.C.) as the representative of management. The Q.C. operates within a strictly observed code of conduct. For example, each member is expected to actively participate, feel free to express his ideas without fear of personal criticism, be respectful and supportive toward others, accept the idea that the work of the circle is a team project, and start and end meetings on time. It is noteworthy that the structure and activities of the Q.C. present great opportunity for personal involvement in concert with fellow employees in determining the solutions to all sorts of problems on the job that a manager far removed from the workplace may have difficulty in solving (product quality, for example), but excluding problems that must legitimately be dealt with by top management. Examples of the latter might be: establishing profit objectives, planning the budget, making marketing decisions and making decisions on

---

(2) Fred Ingle, Quality Circles Master Guide, Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1982, p.13.

other problems far removed from the line worker that clearly cannot effectively involve him.

Why Does It Work?

Basically it humanizes the work-place. A principal tenet of participatory management is that, given opportunity to participate in developing solutions to his work-related problems, a person thereby becomes personally committed to the effective implementation of those solutions. Management thus need not confront a problem so often faced in traditional organizations: how to motivate the worker to do what you believe necessary to solve a problem.

Another tenet is: those closest to the problem are best able to solve it. The Q.C. approach is indeed a whole new ball game!

When given the opportunity to participate in problem-solving decision making, all employees are given the chance to become involved just as are the managers, and become as highly motivated to solve problems and to be as effective as possible, for the same reasons. The most effective businesses have always motivated their managers by providing the same kinds of opportunities in doing their work as the Q.C. affords it members.

From the psychological point of view of meeting human needs, it can be expected that a work situation that provides for meeting the greatest number and level of needs will be highly valued by the employee. An organization whose objectives and concerns are closely allied with the personal-professional objectives and concerns of the employee can expect to enjoy a relationship in which the employee is not an adversary, and where management is viewed as a positive element in the world of work. The work-place is seen as a place to which the worker is drawn, rather than a place to avoid.

Analysis of the Q.C. organization and operation illustrates its potential power for achieving its objectives while simultaneously meeting the common

human needs of people as described by Abraham Maslow (3).

Maslow's Theory of Motivation In a Nutshell

People are motivated to do what is necessary and effective to meet their needs. Needs occur in a hierarchical order from lowest to highest. A lower level need must be satisfied before one will attend to a higher level need. There are two types of needs: Deficiency Needs, which can only be met with and through others; and, Growth Needs, which can be met on one's on volition.

Growth Needs:	HIGHEST	3. Aesthetics
(Depend upon one's self for meeting them)		2. Knowledge and understanding
		1. Self-actualization
Deficiency Needs:		4. Esteem (status)
(Depend upon others for meeting them)		3. Love and belonging (Acceptance)
		2. Safety (security; freedom from threat)
	LOWEST	1. Physiological (sustaining life)

The needs having first priority for being met are the lowest level needs, in the above occurring order. After the deficiency needs are met, only then is the individual able to be free to address growth needs.

The basic principle to be derived from this theory for application to employment and worker behavior, as I see it, is this: a worker will be attracted to, be most satisfied with, and value greatest those work situations that offer the greatest opportunity to meet the greatest number of needs at each level, from lowest to highest, which are experienced by the individual.

Through Q.C. activities, the worker's Physiological needs are met by providing for food, shelter, medical care, etc., through earning a salary. Most traditionally administered organizations end their concern with worker

(3) Adapted from: Maslow, A.H. "A theory of human need motivation", Psychological Review, 1943, v. 50, pp. 370-96.

motivation at this point, believing that the money-motive is sufficient. Clearly, it is not.

Q.C. activities are free from threat and are seen as safe, since there is a strict code of conduct that provides for this basic need.

The Q.C. group meets the need for love and belonging. In the work-place this translates into being perceived as accepted by the group as a worthy colleague along with the naturally occuring positive social relationships that develop in working with others on a team dedicated to a common cause.

The need for esteem is met when the Q.C. member is seen as making a real contribution to problem solving efforts of the team. The Q.C. approach includes providing recognition and other rewards that meet esteem needs of the individual.

Beyond the deficiency needs, which are not being met in the workplace in the case of unhappy, unmotivated, disinterested, and/or work-alienated people, the Q.C. organization invites the person to self-actualization activities which challenge his creative and developmental potential. There are continuing opportunities for self-development and satisfying growth needs through educational and, often, recreational pursuits made available by the employer, in addition to those in the normal Q.C. activities. To illustrate the extent to which the growth need, aesthetics (defined in part in terms of applying universal moral principles in guiding one's behavior), is met in Q.C. organizations, it is commonly stated by Japanese Q.C. firms that they do not want to keep the Q.C. concept and its application to themselves since it is designed to benefit people, and all people should have access to it. Thus, they are quite free in offering the benefit of what they have learned to others.

Why do some Q.C. attempts succeed while others fail?

One over-riding prerequisite for successful Q.C. implementation is that

management must honestly subscribe to the philosophy that it represents (theory Z). If employees perceive through observing management's behavior that there is not a genuine and complete commitment to them and the Q.C. approach to organizational operation (theory X), then there cannot develop that essential affective bond that seems to overcome all difficulties. This bond has been described as a feeling of "family" among Q.C. employees, a feeling of "all for one and one for all." I recall reading in our local newspaper a couple of years ago about a sociological study conducted in regard to Japanese marital relationships. The article explained that typically, if the wife was jealous it was not of another woman but, the husband's employing company! Needless to say, that reflects the strength of the affective bond that can develop in the Q.C. organization.

Another reason why Q.C.'s don't succeed in some firms, even after good preparation through training programs, is that some employees simply don't fit into them. They may prefer to work alone, or to have a great deal of direction and structure in their work. In other words, some personality types would prefer to meet their needs in the traditionally administered bureaucratic organization, and find themselves dissatisfied with Q.C.'s. This spotlights the requirement in Q.C. organizations that Q.C. participation is strictly voluntary, and is not forced upon anyone. Again, the concern is to provide positive opportunities for each individual to meet his needs in the work-place. Refer to Attachment II for further information relevant to this point.

Is the Q.C. for education?

First, one might ask if, indeed, there is a problem with quality in American education as practiced today. For starters, read A Nation at Risk, and refer to Attachment I.

Some would argue that in many colleges and universities participatory management is already being practiced under the name of collegiality. For example, Richard P. Chait(4) feels that this form of management has long "... thriven on the American campus under the rubric of shared governance and collegiality." In a rejoinder to Chait, David A. Nichols(5) finds much fault with comparisons made by Chait between Q.C.'s and academic organization groups, such as academic departments and senates, and their modus operandi. Nichols points out that, "Individualistic chaos and departmental competition are all too common in our colleges and universities.", and, "Academic departments are not really quality circles. ... Departments frequently represent vested faculty interests rather than concern for quality of the educational product."

Further support for the idea that applying theory Z-types of management to the operation of academic institutions is likely to be difficult and perhaps unsuccessful, is expressed in another article by Nichols in the Chronicle of Higher Education(6) in which he enumerates five obstacles. These are, in short: American higher education managementdeceptively appears to be participatory, but really is not; there is lack of participatory-leadership models in higher education to offer guidance; faculty have inadequate experience in group decision making to arrive at a common consensus (which is not the same as politicking to produce a majority vote); confusion over who is responsible for quality; and, confusion over defining exactly what is the educational product. I believe there is wide variation in higher education administration across the country, and that this allows the potential for beginning establishment of Q.C. management in some selected institutions that are, or want to be,

---

(4) Richard P. Chait, "Look who invented Japanese management", AGB Reports, March/April, 1982, pp.3-7.

(5) David A. Nichols,"Challenging Chait on theory Z", AGB Reports, July/August, 1982, pp.8-14.

(6) David A. Nichols, "Can theory Z be applied to academic management?", The Chronicle of Higher Education, September 1, 1982, p.72.

compatible with it.

On the other hand, what about applying Q.C. management to the public schools? James a. Bonner(7) presents a strong case for Q.C. potential. In a recent telephone conversation with Dr. Bonner, he discussed the operation over the past two years of the Special Education Department of the Muskegan, Michigan school system. He is the department director, and has Q.C. management in place. His view is that it results in high morale, provides a needed sense of structure through which to effectively confront and solve problems, develops a sense of real teamwork, and results in the development of solutions that tend to last, as he put it.

Also in the Muskegan school system, I talked via telephone with Mr. Herman Stephens ~~Stevens~~ who is director of the Muskegan Skill Training Center, which is also organized and operated on the Q.C. model. Mr. Stephens ~~Stevens~~ was enthusiastic in his support of this form of management. He pointed out the it has enabled accomplishments that otherwise could not have been achieved by him through traditional management. Some examples he gave were: it is the catalyst for bringing the staff together, results in true commitment to the work as a team member, has produced high morale, has resulted in excellent intraorganizational communication,has engendered a very positive organizational climate, and has resulted in a real sense of respect [valuing?] for the administration.

Mr. Stephens ~~Stevens~~ points out another "plus"-- the program is producing workers who are well prepared to fit into similarly managed organizations.

Anecdotally, Mr. Stephens ~~Stevens~~ illustrated the pervasive effect upon employee motivation by reference to a problem a Q.C. identified-- a need for better public relations for the Center. It was decided to hold an "open House" for the

---

(7) James A. Bonner, "Japanese quality circles; can they work in education?", Phi Delta Kappa, June, 1982, v.63, p.681.

public. He found everyone throwing themselves into the project to make it a success, including his secretary who he found painting walls in jeans on the weekends. He stated unequivocally that he certainly couldn not have motivated them to do all that they did through any number of orders or directives. They were motivated to make it work because it was their own project.

Conclusion

The Q.C. approach to management and organizational operation can and has worked where that was the genuine desire of all involved.

It is not a "fad" or a "quick fix" management technique. Making it work takes total commitment from management, with preparation for all through training and education of those who want to be involved in participative management. James Bonner told me that it has been his experience that, while there is tremendous interest in the potential of Q.C.'s for application to educational organizations on the part of many with whom he has consulted, there has been little, if any, effort to implement the concept.

As one who can visualize the vast potential that Q.C.'s have for merging organizational and human objectives over a broad range, I predict that eventually it will prove to have been the wave of the future in administration. Educational administration, as it is taught today, is typically seen as a discipline in transition moving away from the old traditional bureaucratic model. Let us get on with the evolution of our discipline and make deliberate considered effort to further develop it. Let us stimulate interest, scholarship and research into this vital and fascinating area by focusing in on the quality control circle movement.

Attachment I.

The Sunday Ledger-Enquirer, Columbus, Ga., October 9, 1983

Over 22% Fail Teacher Certification Test On 1st Try; Black Failure Rate Higher

ATLANTA (AP) — More than 22 percent of those taking Georgia's teacher certification test fail on their first try. And blacks fail at a much higher rate than whites.

Figures contained in a state Department of Education five-year summary of scores on the Georgia Teacher Teaching Program indicate almost 5,000 of the 22,261 who have taken the test could not pass it on the first try.

The report was prepared for Gov. Joe Frank Harris' Education Review Commission.

Blacks fail the test at a dramatically higher ratio than whites with only 34 percent succeeding on the first try while 87 percent of whites passed initially.

"What's significant is that initially, 22 percent of those who graduate from college with a C average or better cannot pass a test of the content they're supposed to teach," said William Leach, director of teacher certification for the state education department.

"As you can see, there are a lot of people who learn on the job."

The disparity between blacks' and whites' scores is not unique to Georgia. In Florida, 70 percent of black teacher applicants fail the state's test, compared to less than 15 percent of whites. The story is similar in South Carolina and Mississippi.

"We don't think the test is racially discriminating; it is a disrimination of knowledge," said Sidney Neville of the education department.

"What we're feeling is the effects of deprivation from a segregated society, and you can't overcome that in four years."

"There certainly may be some bias, but with the kinds of results we're seeing, it can't just be that," Mark Musick of the Southern Regional Education Board said.

"We've been concerned about this for some time. But we have concluded that the tests are not going to go away just because large numbers of blacks are failing."

Elias Blake, president of predominatly black Clark College, said, "If there's any racial bias, it's in the differential quality of education that has been consistent for blacks in the region. But I'm not looking for any issue to hide behind. If people who are training to teach are passing this test, then Clark College students must pass it."

Attachment II.

Some Reasons Why Q.C.'s Don't Work

1. Negative employee feeling toward management, with active dislike common.
2. Unrealistic expectations and inadequate acceptance of Q.C.'s by management, accompanied by inept relations with employees.
3. Poor supervisory training, translating into ineffective groups leadership.
4. "Cold" management style of the Theory X type, which is incompatible with Q.C.'s (which are of Theory type) and participatory in nature.

Note: All above relate to problems of managers, not the Q.C. method and practice.

Elements Essential to a Successful Quality Circle Program

1. Management Commitment - at all levels.
2. Compatible Organizational Philosophy.
3. The Right of Employees to Participate or Not Participate.
4. Training in Q.C. Principles and Operation - for Q.C. leaders and group-members.
5. Freedom of Members to Participate in Q.C. Related Activities.
6. "Ownership" of Problem Solutions by Q.C. Members.
7. Code of Conduct to Operate By - to insure effective problem-solving oriented activity.
8. Support Group Back-up.
9. Organizational Structure of the Q.C. Fits Into the Overall Organizational Structure and Operations - it must be feasible within the operating framework of the larger organization. For example, the Q.C. leader might be the group supervisor.
10. Reward Q.C. Members - (Extrinsic and intrinsic).
11. Cost Commitment at the Outset - do it well, or don't start Q.C.'s.
12. Union Involvement - thorough preparation and participation of union personnel is critical.

BIBLIOGRAPHY

Ambler, Aldonna R. and Miles H. Overstreet "Are Quality Circles Right for Your Company?" Personnel Journal, Vol. 61, pp. 829 - 831, Nov. 1982.

Asian Productivity Organization. Japan Quality Control Circles. Tokyo: Industrial Engineering and Technology, 1972.

Balley, John J., Jr. and Rudolph L. Kogerer "A Primer on Quality Circles." Supervisory Management, Vol. 27, pp. 40 - 43, June 1982.

"Circles Zero-In On Trouble", Daily Pilot, July 23, 1978.

Cole, Robert E. "Learning from the Japanese: Prospects and pitfalls." Management Review, September 1980, p. 26.

Cole, Robert E., "Will QC Circles Work In The U.S.?", Quality Progress, July 1980, pp. 30-33.

Donnelly, Jr., James H.; Gibson, James L.; and Ivancevich, John M. Fundamentals of Management; Plano, Texas: Business Publications, 1981.

Eccl. 3:1

Fitzgerald, Lauri and Murphy, Joseph. Installing Quality Circles: A Strategic Approach. San Diego: University Associates, 1982.

Hanley, Joseph, "Our Experience With Quality Circles", Quality Progress, February 1980, pp. 22-24.

Henderson, James A.; Hintz, E.R.; Jarrett, J.V.; Marbut, R.G.; and White, W.J. Creative Collective Bargaining. Englewood Cliffs, N.J.: Prentice-Hall, 1965.

Herzberg, Frederick, "Human Roots of Productivity", Industry Week, September 15, 1980.

Herzberg, Frederick, "Maximizing Work and Minimizing Labor", Industry Week, October 13, 1980.

"Honeywell Imports Quality Circles As Long-Term Management Strategy", Training/HRD, August 1980, pp. 91-95.

Imberman, Woodruff "Why Quality Circles Don't Work" Canadian Business, Vol. 55, pp. 103-105, March 1982

Ingle, Sud, Quality Circles Master Guide, Englewood Cliffs, N.J.; Prentice-Hall, 1982.

"Japanese Managers Tell How Their System Works", Fortune, November 1977, pp. 126-140.

Juran, Joseph M., "International Significance Of The QC Circle Movement, Quality Progress, November 1980, pp. 18-22.

Juran, J.M.. "International Significance of the QC Movement." Product Assurance Bulletin, March 1981, pp. A14, A18.

Justis, Robert T. "America feasts on Japanese management delicacies--Quality Circles, JIT and kanban." DATA Management, October 1981, pp. 30-39.

Lewis, Chris and Jim Rooney "Quality Circles in Situ" Personnel Management, pp. 56 - 59, October 1981

List, Charles E. "How to Make Quality Circles Work for Your Organization" Personnel Journal, Vol. 61, pp. 652 - 653, September 1982.

"Made In Japan - QC Circles", Across the Board, No. 11, November 1979, pp. 72-78.

"Management: The Japanese Touch", Newsweek, July 8, 1974, p. 42.

Mason, Claire C., "'Made In Japan' Is No Joke Now, Thanks To Edward Deming: His New Problem Is Made In USA", People, September 8, 1980.

McDermott, Kevin "QC" Advanced Management Journal, Vol. 47, p. 52, Summer 1982

"More Companies Adopt Quality Control Circles", Industry Week, August 1, 1977, pp. 67-68.

Myers, M. Scott. Every Employee a Manager. New York: McGraw-Hill, 1981.

NBC White paper "If Japan Can...Why Can't We?", available in videocassette for sale or rent, also 16 mm. film for sale or rent. Available from Films, Inc., 733 Green Bay Road, Wilmette, IL, 60091, or call toll free 800-323-1222.

"The New Industrial Relations." Business Week, 11 May 1981, pp. 96, 98.

"No Miracle - Just Good Management", Quality, February 1978, pp. 22-44.

Pascarella, Perry."Quality Circles: Just Another Management Headache?" Industry Week, Vol. 213, pp. 50 - 55, June 28, 1982.

Personnel Management (editorial), Vol. 13, p. 10, July 1981.

"Productivity And Morale Sagging? Try the Quality Circle Approach", Personnel, May-June 1980, pp. 43-44.

"QC Circles: A Productivity Tool", Small Business Report, May 1980.

"Quality Circles Become Contagious", Industry Week, April 14, 1980, pp. 99-103.

"Quality Concept Catches On Worldwide", Industry Week, April 16, 1979, p. 125.

"Quality Control Circles Pay Off Big", Industry Week, October 29, 1979, pp. 17-19.

"Quality Control Circles Save Lockheed 3 Million Dollars", Quality Magazine, May 1977, Hitchcock Publishing Co., Wheaton, Illinois.

Rosow, Jerome M. "Quality of Working Life and Productivity." Vital Speeches of the Day, April 1977, pp. 496, 498.

Springstead, Clarence S. Introduction. Product Assurance Bulletin, March 1981, pp. 3,5.

Stanton, Erwin D. "A Critical Reevaluation of Motivation, Management, and Productivity." Personnel Journal, pp. 208 - 214, March 1983.

Stearns, Mary. "Japan as a mirror for American management." DATA Management, October 1981, p. 48.

Tortorich, R. et al., "Measuring Organizational Impact of Quality Circles." The Quality Circles Journal, November 1981, pp. 26-34.

Yager, Ed. "Examining the Quality Control Circle." Personnel Journal, October 1979, p. 684.

Yager, Ed. "Quality Circle: A Tool for the 80's." Training and Development Journal, August 1980.

Vander Zanden, James W. Human Development, 2nd Ed., pp. 521 - 525, Alfred A. Knopf, N.Y. 1981.